

CLAIMS

[1] An electrically conductive member for electrically connecting a plurality of solid oxide fuel cells in series and/or parallel to assemble a fuel-cell stack,
characterized in that the electrically conductive member comprises a metal sheet having a three-dimensional porous structure of a continuous skeleton.

[2] The electrically conductive member according to claim 1, wherein the diameter of voids in the three-dimensional porous structure is in the range of 0.30 to 0.80 mm.

[3] The electrically conductive member according to claim 1 or 2, wherein the axis diameter of the skeleton is in the range of 35 to 80 μm .

[4] The electrically conductive member according to any one of claims 1 to 3, which comprise a resin having a three-dimensional porous structure of a continuous skeleton and a metal plating thereon.

[5] A fuel-cell stack comprising a plurality of solid oxide fuel cells electrically connected in series and/or parallel through an electrically conductive member,
characterized in that the electrically conductive member comprises a metal sheet having a three-dimensional porous structure of a continuous skeleton.

[6] The fuel-cell stack according to claim 5, wherein the electrically conductive member comprises a plurality of metal sheets having a three-dimensional porous structure of a continuous skeleton stacked on top of each other.

[7] The fuel-cell stack according to claim 5, wherein the electrically conductive member comprises a metal sheet having a three-dimensional porous structure of a continuous skeleton which has been folded a plurality of times.

[8] The fuel-cell stack according to claim 6 or 7, which has a layered structure which undergoes separation from the interface of the stacked or folded part of the metal sheet after baking or power generation.

- [9] The fuel-cell stack according to any one of claims 6 and 7, wherein the thickness of the electrically conductive member in the laminated structure is about 1.0 mm to about 6.0 mm.
- [10] The fuel-cell stack according to any one of claims 5 to 9, wherein the solid oxide fuel cell comprises at least an electrolyte, an air electrode, a fuel electrode, and an interconnector connected to the air electrode or fuel electrode and is cylindrical.
- [11] The fuel-cell stack according to any one of claims 5 to 10, which has been subjected to baking or power generation.
- [12] The fuel-cell stack according to any one of claims 5 to 11, wherein the electrically conductive member is provided over substantially the whole length in the axial direction of the fuel cell.
- [13] The fuel-cell stack according to claim 12, wherein the electrically conductive member in the serial direction is provided over substantially the whole length in the axial direction of the fuel cell.
- [14] The fuel-cell stack according to any one of claims 5 to 11, wherein the electrically conductive member has been divided into a plurality parts which are provided over substantially the whole length in the axial direction of the fuel cell.
- [15] The fuel-cell stack according to claim 14, wherein the electrically conductive member in the serial direction has been divided into a plurality parts which are provided over substantially the whole length in the axial direction of the fuel cell.
- [16] The fuel-cell stack according to any one of claims 5 to 11, wherein the electrically conductive member is provided only on a part of the fuel cell.
- [17] The fuel-cell stack according to claim 16, wherein the electrically conductive member in the serial direction is provided only on a part of the fuel cell.
- [18] The fuel-cell stack according to any one of claims 5 to 11, wherein the electrically conductive member is provided only on both ends and fuel gas feed-side of the fuel cell.
- [19] The fuel-cell stack according to claim 18, wherein the electrically conductive member in the serial direction is provided only on both ends and fuel gas feed-side of the fuel cell.
- [20] The fuel-cell stack according to any one of claims 5 to 11,

wherein the electrically conductive member is provided only on both ends and fuel gas exhaust-side of the fuel cell.

- [21] The fuel-cell stack according to claim 20, wherein the electrically conductive member in the serial direction is provided only on both ends and fuel gas exhaust-side of the fuel cell.
- [22] The fuel-cell stack according to any one of claims 5 to 11, wherein the electrically conductive member is provided only on both ends of the fuel cell.
- [23] The fuel-cell stack according to claim 22, wherein the electrically conductive member in the parallel direction is provided only on both ends of the fuel cell.
- [24] A maintenance method for a fuel-cell stack comprising a plurality of solid oxide fuel cells electrically connected in series and/or parallel through an electrically conductive member,
 - characterized in that the electrically conductive member comprises a metal sheet having a three-dimensional porous structure of a continuous skeleton, and
 - the electrically conductive member and/or the fuel cell are replaced after baking or power generation.